Claims

1. Earth-alkali salts of losartan.

2. Sodium salt of losartan.

3. Potassium salt of losartan in a crystalline form with bound water characterized by a powder X-ray diffraction pattern with peaks at about 2θ = 13.0, 17.2, 19.7, 20.9, 21.0, 23.2, 23.6, 24.5, 25.0, 26.6, 17.3, 28.2, 29.0, 31.5° where the water content is between around 7% and 12% by weight.

4. Potassium salt of losartan in a crystalline form characterized by a powder X-ray diffraction pattern with peaks at about 2θ = 6.9, 13.8, 20.6, 24.0, 24.8, 28.7 in 29.2° (Form X).

5. Potassium salt of losartan in a crystalline form characterized by a powder X-ray diffraction pattern with peaks at about 2θ = 6.7, 13.8, 17.4, 19.2, 24.5, 24.8, 25.2 in 28.9 ° (Form Y).

6. Potassium salt of losartan in a crystalline form selected from those characterized by a powder X-ray diffraction pattern essentially as depicted on Figure 29, Figure 31, Figure 33 or Figure 36.

7. Alkali or earth-alkali salts of losartan in amorphous form with proviso that the alkali salt of losartan is not potassium salt of losartan.

8. A process for preparation of alkali or earth-alkali salts of losartan characterized by process comprising following steps:
   a) adding to the solution of losartan in an alcohol or a mixture comprising alcohol and nonprotic solvent an alcoholate of an alkali or an earth-alkali metal;
   b) precipitating or crystallizing the obtained salt; and

c) isolating of the obtained precipitated or crystallized salt by filtration or centrifugation.

9. A process for the preparation of sodium salt of losartan characterized by following steps:
   a) adding to the solution of losartan a solution of sodium hydroxide until pH is between around 9 and around 12;
   b) precipitating or crystallizing of the obtained salt by addition of an aprotic solvent; and
   c) isolating of the obtained precipitated or crystallized salt by filtration or centrifugation.

10. A process of purification of losartan characterized by following steps: conversion of losartan into a salt; subsequent isolation of said salt; conversion of said isolated salt into losartan.

11. Use of alkali or earth-alkali salt of losartan in the process of purification of losartan according to previous claim.

12. A process for preparation of a potassium salt of losartan in a crystalline form according to claim 3 characterized by conversion of potassium salt of losartan in presence of water.

13. The process according to previous claim characterized by comprising following steps:
   a) preparing a concentrated aqueous solution of potassium salt of losartan where the mass of water is from about 0.4 to about 1.2 times the mass of losartan; and
   b) isolating a potassium salt of losartan in a crystalline form by drying and milling.

14. The process according to claim 12 characterized by water being present as moisture or in the mixture with one or more solvents which do not mix with water or poorly mix with water.

15. A process for preparation of potassium salt of losartan in a crystalline form according to claim 4 characterized by isolation from solvent which is methanol or solvent mixture comprising methanol.

16. A process of converting potassium salt of losartan in a crystalline form exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.7, 13.8, 17.4, 19.2, 24.5, 24.8, 25.2 in 28.9 ° (Form Y) or its solvates into potassium salt of losartan in a crystalline form exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.9, 13.8, 20.6, 24.0, 24.8, 28.7 in 29.2° (Form X), characterized by drying in vacuum or at normal pressure at room or higher temperature.

17. A process for the preparation of alkali or earth-alkali salt of losartan in amorphous form, wherein said alkali salt is a sodium salt of losartan and earth-alkali salt is chosen between calcium salt and magnesium salt.

18. Process for preparation of amorphous potassium salt of losartan by removing water by drying a potassium salt of losartan in a crystalline form with bound water according to claim 3.

19. A process according to claim 17, characterized in that the last step of the process comprises a lyophilization of frozen aqueous solution of alkali or earth alkali salt of losartan.

20. A process for the preparation of alkali or earth-alkali salt of losartan in amorphous form from losartan, comprising following steps:

a) suspending losartan in water;

b) dissolving the obtained suspension by adding an aqueous solution of alkali metal hydroxide or alcoholate or earth-alkali metal hydroxide or alcoholate at the temperature above 0° C until the pH of the solution reaches at least about 9,3;

c) freezing the obtained solution of salt of losartan; and

d) lyophilizing the obtained frozen solution.

21. Use of isolated alkali or earth-alkali salt of losartan in the process for the preparation of an alkali or earth-alkali salt of losartan in amorphous form.

22. An industrial scale process for the preparation of potassium salt of losartan in a crystalline form exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.9, 13.8, 20.6, 24.0, 24.8, 28.7 in 29.2° (Form X) characterized by comprising following steps: removing the protecting group from 2-n-butyl-4-chloro-5-hydroxymethy-1-[2'-triphenylmethyl-2H-tetrazol-5-yl)[1,1'-biphenyl-4-yl]methyl]imidazole; forming a potassium salt with potassium alcoholate; crystallizing and isolating and optionally milling potassium salt of losartan in a crystalline form.

23. Potassium salt of losartan in a crystalline form chosen from the one exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.7, 13.8, 17.4, 19.2, 24.5, 24.8, 25.2 in 28.9 °; the one exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.9, 13.8, 20.6, 24.0, 24.8, 28.7 in 29.2° and the one exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 13.0, 17.2, 19.7, 20.9, 21.0, 23.2, 23.6, 24.5, 25.0, 26.6, 17.3, 28.2, 29.0, 31.5° characterized in that it comprises more than 50% of the particles having diameter between around 5 μm and around 500 μm.

24. Amorphous potassium salt of losartan characterized in that it comprises more than 50% of the particles having diameter between around 5 μm and around 500 μm.

25. Potassium salt of losartan according to any one of previous two claims characterized by comprising at least 50% of the particles having diameter below 100 μm.

26. Use of sodium salt of losartan or potassium salt of losartan in a crystalline form with bound water characterized by a powder X-ray diffraction pattern with peaks at about 2θ = 13.0, 17.2, 19.7, 20.9, 21.0, 23.2, 23.6, 24.5, 25.0, 26.6, 17.3, 28.2, 29.0, 31.5° where the water content is between around 7% and 12% by weight or potassium salt of losartan in a crystalline form characterized by a powder X-ray diffraction pattern with peaks at about 2θ = 6.9, 13.8, 20.6, 24.0, 24.8, 28.7 in 29.2° (Form X) or its solvates or potassium salt of losartan in a crystalline form characterized by a powder X-ray diffraction pattern with peaks at about 2θ = 6.7, 13.8, 17.4, 19.2, 24.5, 24.8, 25.2 in 28.9 ° (Form Y) or its solvates as a medicament.

27. Use of salt of losartan for the manufacturing of a medicament for treatment of hypertension where the salt is selected from sodium salt or crystalline potassium salt of losartan for the manufacturing of a medicament for treatment of hypertension where the crystalline potassium salt of losartan is selected from one exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.9, 13.8, 20.6, 24.0, 24.8, 28.7 in 29.2°, the one exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 6.7, 13.8, 17.4, 19.2, 24.5, 24.8, 25.2 in 28.9 ° or their solvates or one with bound water exhibiting a powder X-ray diffraction pattern with peaks at about 2θ = 13.0, 17.2, 19.7, 20.9, 21.0, 23.2, 23.6, 24.5, 25.0, 26.6, 17.3, 28.2, 29.0, 31.5° where the water content is between around 7% and 12% by weight.

28. A pharmaceutical composition comprising potassium salt of losartan in a crystalline form sensitive to moisture comprising from about 25% to 33% potassium salt of losartan; from 55% to 70% by weight of microcrystalline cellulose; from 2% to 10% by weight croscarmellose; and anhydrous silica.